

Table S1 Some of the basic characteristics of the wheat cultivars used in the current research experiment.

S.no.	Genotypes	Duration (Days)	Average yield (t ha⁻¹)	Special characteristics	References
G ₁	HD 3226	142	5.8	The average Zinc content is 36.8 PPM, and it exhibits high resistance to all rust, Karnal bunt, powdery mildew, as well as foot rot and loose smut.	(1.)
G ₂	HDCSW 18	145	6.28	The country's initial breed developed exclusively for conservation agriculture (CA) conditions is the first of its kind. It can withstand high temperatures during the seedling stage, and its early seeding allows it to avoid high temperatures at maturity. Additionally, it exhibits a strong resistance to brown rust and has a lower incidence of Karnal bunt.	(2.)
G ₃	HD 2967	129- 143	4.4-5.0	This variety shows resistance to brown rust, and susceptible to newly evolved strains of yellow rust.	(3.)
G ₄	HD 3086	145	5.4	Brown and yellow rust resistant genotype	(4.)
G ₅	HD 3249	122	5.7	This variety is biofortified, resistant to stem, leaf rust, loose, Karnal bunt and foot rot	(5.)
G ₆	HD 2733	110-115	4.1	Exhibiting leaf and stripe rust resistance, while also shows tolerance to leaf blight.	(6.)
G ₇	PBW 550	146	4.5-5.0	Showing less prone to heat stress, along with resistance to rust.	(7.)

G ₈	PBW 343	130-135	5.5-6.0	This genotype is susceptible to diseases caused by rust, Ug 99, and virulent strain of stem rust	(8.)
G ₉	HD 3117	122	4.7	This genotype is free from brown or yellow rust in natural circumstances and highly tolerant to Karnal bunt	(9.)
G ₁₀	HD 3298	104	3.9	Exhibiting resistance to rust, bunt and powdery mildew, and foliar head blight, as well as flag smut. Furthermore, this wheat variety is bio-fortified and contains a high concentration of Fe (43.1%).	(10.)

*G = genotype

References:

- (1.) <https://icar.org.in/index.php/node/12081>
- (2.) <https://www.iari.res.in/iari-varieties/crops.php?grp=bkY2T0dYUC9uS1VoMzM0ZkM4SmtLdz09&crp=eElpNlpJOU1TOUY4TzlVMnFVamNZZz09>
- (3.) <https://www.iari.res.in/iari-varieties/crops.php?grp=bkY2T0dYUC9uS1VoMzM0ZkM4SmtLdz09&crp=eElpNlpJOU1TOUY4TzlVMnFVamNZZz09>
- (4.) <https://www.iari.res.in/iari-varieties/crops.php?grp=bkY2T0dYUC9uS1VoMzM0ZkM4SmtLdz09&crp=eElpNlpJOU1TOUY4TzlVMnFVamNZZz09>
- (5.) <https://www.isgpb.org/article/wheat-variety-pusa-wheat-3249-hd-3249>
- (6.) <http://ztmbpd.iari.res.in/technologies/varietieshybrids/cereals/wheat/>
- (7.) <https://www.pau.edu/coa/index.php?act=manageDepartments&DO=viewMatter&intDepTitleID=20&intLinkID=9&strDepTitle=Important%20Achievements>
- (8.) <https://www.pau.edu/coa/index.php?act=manageDepartments&DO=viewMatter&intDepTitleID=20&intLinkID=9&strDepTitle=Important%20Achievements>
- (9.) <https://www.iari.res.in/iari-varieties/crops.php?grp=bkY2T0dYUC9uS1VoMzM0ZkM4SmtLdz09&crp=eElpNlpJOU1TOUY4TzlVMnFVamNZZz09>
- (10.) <https://epubs.icar.org.in/index.php/JWR/article/view/123981>